



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/449,575	11/29/1999	JIN-YI PAN	552.112US01	6435

32294 7590 11/02/2005

SQUIRE, SANDERS & DEMPSEY L.L.P.  
14TH FLOOR  
8000 TOWERS CRESCENT  
TYSONS CORNER, VA 22182

EXAMINER

TRAN, DZUNG D

ART UNIT PAPER NUMBER

2638

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/449,575

Applicant(s)

PAN, JIN-YI

Examiner

Dzung D Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on RCE filed on 08/18/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Specification***

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 15-18 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Badt, Jr et al. US patent no. 6,496,476 in view of Crawley et al. U.S. patent no. 5,953,312.

Regarding claim 1, Badt, Jr discloses a method for establishing a protection path for a failed link between first and second nodes (figure 19, elements 42, 48) in a mesh network (figure 19) wherein a transfer of information from the first node (origin node) to the second node (destination node) is disrupted by the failed link (time span 112), the method comprising:

establishing an alternate path from the second node (destination node) to the first node (origin node) via a destination to source communication channel , wherein the destination to source communication channel is established through at least one alternate nodes (46, 48, 186) beginning at the second node and ending at the first node (figure 19, steps 4, 5, column 13, lines 13-38);

requesting each of the alternate nodes (46, 48, 186) to allow the information traffic flow from the first node to the second node along the alternate path (figure 19 shown a return message flown over the same path but in the opposite direction, column 13, lines 20-22, 39-58); and

switching the information traffic flow at the first node to the alternate path (figure 27, col. 14, lines 51-67). Badt, Jr further discloses in figure 27, the information traffic flown at the first node to the second node over a plurality alternate paths (e.g., maxflow step, paths 1-2-4, 1-3-2-4, 1-3-4). Therefore, it would be inherent that a first node send the information to the second node over the same alternate path that established by the second node (e.g., the plurality alternate paths includes the alternate path that established by the second node). Badt, Jr differs from claim 1 of the present invention in that Badt, Jr does not specifically disclose for determining whether a node of at least one alternate node has available capacity to allow information from the failed link to be rerouted. Crawley discloses a system for selecting an alternate route in a network in that the system determining whether a node of at least one alternate node has available capacity to allow information from the failed link to be rerouted (Figures 2 and 3; col. 4, lines 14-23). At the time of the invention was made, one of ordinary skill in the art would have been motivated to implement the teaching of Crawley in the system of Badt, jr. because the method of identifying an alternate path in a network using a connection-oriented protocol of Crawley provides a system for identifying alternate paths requiring less time and computational resources than the normal procedure for identifying alternate paths that is for identifying alternate paths considers every possible path

Art Unit: 2633

through the network which is time consuming and requires considerable computational resources each time an alternate path must be identified (col. 1, lines 48-58 of Crawley).

Regarding claim 2, Badt, Jr further discloses that the mesh network is an optical mesh network, and the information transferred comprises optical signals (figure 19).

Regarding claim 3, Badt, Jr further discloses that the optical mesh network is an optical mesh network incorporating wavelength division multiplexing whereby multiple optical signals each transmitted at a different wavelength are transmitted on a single optical fiber (figures 30-32).

Regarding claim 15, Badt, Jr further discloses that first node (42) is an information- originating source node from which the information transfer is initiated

Regarding claim 16, Badt, Jr further discloses that the first node (42) is an intermediate source node between the failed link and an information-originating source node from which the information transfer is initiated (figure 16).

Regarding claim 17, Badt, Jr further discloses that second node (48) is a targeted destination node to which the information transfer is ultimately directed.

Regarding claim 18, Badt, Jr further discloses that the second node (48) is an intermediate source node between the failed link and a targeted destination node to which the information transfer is ultimately directed (figure 16).

Regarding claim 34, Badt, Jr further disclose the send message is send from destination node to the source node whereby when the send message reach the source node, the alternate has been established (column 13, lines 13-58).

Art Unit: 2633

3. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma et al. U.S. patent no. 6,430,150 in view of Crawley et al. U.S. patent no. 5,953,312.

Regarding claim 36, Azuma discloses in figure 6, a network node comprising:  
a port that connect to alarm message detecting part 10 and topology update message detecting part 20 configured to receive information from a communication link (34);

a control circuit (26) that is operably connected to the port and configured to a cross connect section (16, 18);

the cross connect section (16, 18) connected to the control circuit (26) and that is configured to direct network traffic flow between the first node (figure 2A, node A) and a second node (figure 2A, node B), and the control circuit (26) cause s the cross connection (16, 18) to execute a switch function to allow source to destination information traffic flow along a alternate path (col. 7, line 20 to col. 8, line 26). Azuma differs from claim 36 of the present invention in that Azuma does not specifically disclose for determining whether a node of at least one alternate node has available capacity to allow information from the failed link to be rerouted. Crawley discloses a system for selecting an alternate route in a network in that the system determining whether a node of at least one alternate node has available capacity to allow information from the failed link to be rerouted (Figures 2 and 3; col. 4, lines 14-23). At the time of the invention was made, one of ordinary skill in the art would have been motivated to implement the teaching of Crawley in the system of Azuma because the

Art Unit: 2633

method of identifying an alternate path in a network using a connection-oriented protocol of Crawley provides a system for identifying alternate paths requiring less time and computational resources than the normal procedure for identifying alternate paths that is for identifying alternate paths considers every possible path through the network which is time consuming and requires considerable computational resources each time an alternate path must be identified (col. 1, lines 48-58 of Crawley).

Regarding claim 37, Azuma further discloses a network node is a WDM mesh network node (col. 1, lines 7-26).

4. Claims 4-14 and 19-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Badt, Jr et al. US patent no. 6,496,476 in view of Crawley et al. U.S. patent no. 5,953,312 and further in view of Azuma et al. U.S. patent no. 6,430,150.

Regarding claims 4, as per claims above, the combination of Badt, Jr and Crawley discloses all the limitations except for optically switching the wavelengths of one or more of the optical signals of the failed link onto optical fibers establishing the alternate path. Azuma discloses for executing a switch function that comprises optically switching the wavelengths of one or more of the optical signals of the failed link onto optical fibers establishing the alternate path (column 4, line 62 to column 5, line 7). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the teaching of Azuma in the system of the combination of Badt, Jr and Crawley. One of ordinary skill in the art would have been motivated to do this since the switching allow the system to reroute the optical signals from service path to

Art Unit: 2633

alternate path in the event of fault on the link or link failure. Thus, the restoration paths allow the system to continue to serve the end users, therefore, improving the system reliability.

Regarding claim 5, Azuma et al. further disclose optically switching one or more of the optical signals of the failed link comprises switching the one or more optical signals to alternate ports of an optical cross-connect (column 4, line 63 to column 5, line 7).

Regarding claim 6, Azuma et al. further disclose a switch function that comprises switching the optical signals of failed optical fibers onto alternate optical fibers to establish the alternate path (column 2, lines 20-21, column 3, lines 14-17).

Regarding claim 7, Azuma et al. further disclose switching one or more of the optical signals of the failed fibers onto alternate optical fibers comprises collectively switching the one or more optical signals associated with the optical fibers of the failed link to different ports of a fiber cross-connect (column 4, line 63 to column 5, line 7, column 2, lines 20-21, column 3, lines 14-17) .

Regarding claim 8, Azuma et al. further disclose for establishing an alternate path from the second node to the first node comprises routing the destination-to-source communication channel along a predetermined path of the alternate nodes (column 1, lines 29-37).

Regarding claims 9 and 10, Azuma et al. further disclose for establishing an alternate path from the second node to the first node comprises routing the destination-to-source communication channel along a dynamically-generated path of



the alternate nodes and selecting the potential alternate node for inclusion into the dynamically-generated path (column 1, lines 38-42).

Regarding claim 11, Azuma et al. further disclose a node address table (figures 1A, 1B).

Regarding claim 12, Azuma et al. further disclose the node status at least the next two hops of nodes (figure 5B, column 3, line 48).

Regarding claims 13 and 14, Azuma et al. further disclose for detecting the failed link at the second node (column 4, line 45-49).

Regarding claims 19 and 20, Azuma et al. further disclose transmitting a failure notification message from the second node to the first node via the destination-to-source communication channel, wherein the destination-to-source communication channel transmits the failure notification message from the second node to the first node by way of the alternate path (column 4, lines 44-49, column 9, lines 49-50).

Regarding claim 21, Azuma et al. further disclose that destination-to-source communication channel comprises one or more wavelengths dedicated to transmitting management information, including a link failure notification (column 3, line 62 to column 4, line 50).

Regarding claim 22, Azuma et al. further disclose a network protection configuration for use in optical mesh network topologies to reroute optical signals from a failed transmission path to one or more alternate transmission paths (abstract, figures 5A, column 1, lines 6-10), the network protection configuration comprising:

Art Unit: 2633

an optical fiber network comprising a plurality of optical network nodes (figure 1, elements 1, 2, 3) and a communication channel established from the destination node to the source node to transmit a path failure notification, wherein a route established by the destination-to-source communication channel traversing one or more of the optical network nodes defines the alternate transmission path, and wherein the network nodes defining the alternate transmission path are switched in response to the path failure notification to facilitate source-to-destination transmission of the optical signals from the failed transmission path along the alternate path (column 2, lines 11-54).

Regarding claims 23-26, Azuma et al. further disclose in figure 1A, 1B each of the optical network nodes further comprises memory to store an optical node address table, wherein the optical node address table maintains status information for surrounding optical network nodes being within at least two hops of the optical network node (claim 23), the status information comprises an optical node address for the surrounding optical network nodes (claim 24), the status information comprises node availability information for the surrounding optical network nodes (claim 25) and the status information comprises node bandwidth capacity information for the surrounding optical network nodes (claim 26).

Regarding claims 27 and 28, Azuma et al. further disclose each of the optical network nodes further comprises a fiber cross-connect circuit coupled to one or more of the optical fibers of the failed transmission path to switch the optical signals corresponding to a failed optical fiber to fiber cross-connect output ports to route the optical signals corresponding to the failed optical fiber to targeted optical fibers along

Art Unit: 2633

the alternate path (column 4, line 63-column 5, line 7, column 2, lines 20-21, column 3, lines 14-17) .

Regarding claim 29, Azuma et al. further disclose that the optical mesh network is an optical mesh network incorporating wavelength division multiplexing whereby multiple optical signals each transmitted at a different wavelength are transmitted on a single optical fiber (figures 4A, 4B, 9, column 4, lines 41-51, column 11, lines 1-3).

Regarding claim 30, Azuma et al. further disclose for detecting the failed transmission path at the destination node (column 4, lines 45-50)

Regarding claim 31, Azuma et al. further disclose that each of the optical network nodes comprises switching means for rerouting the optical signals corresponding to the failed transmission to optical fibers along the alternate path in response to the path failure notification (column 7, lines 20-29).

Regarding claims 32 and 33, Azuma et al. further disclose an optical cross-connect circuit coupled to receive one or more of the optical signals and to switch the optical signals to particular output ports of the optical cross-connect to route the optical signals to targeted ones of the optical fibers (column 4, line 63 to column 5, line 7, column 2, lines 20-21, column 3, lines 14-17).

Regarding claim 35, Badt, Jr further disclose the send message is send from destination node to the source node whereby when the send message reach the source node, the alternate has been established (column 13, lines 13-58).

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script that reads "Dzung Tran".

Dzung Tran  
10/27/2005